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EVALUATION OF THE FUNCTIONALITIES OF LARGE INFORMATION SYSTEMS COMPONENTS

Abstract: The purpose of this article is to describe the process of creation of an information system model for a selected research object (IT-company «METALL»).

This system would allow to evaluate quantitative characteristics of each project using methods of econometrical analysis of the results of the practical usage of METALL components functionalities. Thereby, the costs of further development of METALL system components would be reduced, company top-management would get real data with all components efficiency, which is very important for identifying further company development strategy.

Key words: IT, informational system, informational system model, business process, econometrical analysis, KPI, optimization.

«METALL» system provides many standard components and functionalities, which are improved and expanded by internal company development business flows all the time. Project teams use a standard version of the system and configure it for the customer's requirements. The ways for Competence Centers' heads and top-management of «METALL» GmbH for collecting statistics (usage of different functionalities in projects, percentage of standard functionalities improvements, "nice-to-have" suggestions from project teams as from real market participants, etc.) are not systemized: there is no special tool which could provide evaluation of key point indicators (KPI) of real usage of «METALL» for concerning further improvements. Furthermore, project managers cannot systematically use experience from previous projects because of unstructured knowledge and experience in existing documentation – as a result important invaluable information about real

market tendencies is being lost. «METALL» Metrics System would be the way to maximize collecting helpful information about the project and to provide top-management and employees responsible for the components with information about real usage of «METALL».

The main objectives of «METALL» Metrics System are:

- to significantly reduce costs (due to the usage of the acquired experience with each project) for the establishment and improvement of the «METALL» components;
- to get the clearest idea of the complexity of the project «METALL» implementation at the stage of concluding a contract with the customer;
- to obtain quantitative characteristics of perspectives of the component development;
- to identify the most perspective directions of «METALL» development and the activity of the company in the international market in general;
- to structure the knowledge;
- to make the decision making process about further improvements of standard functionality easier and much more transparent.

The main idea of «METALL» Metrics System is to collect all the statistical and functionalities' data in one storage which would ensure interaction between project teams and Competence Centres and allow to obtain quantitative characteristics of each project on the basis of an econometric analysis of the practical usage indicators of the components' functionalities.

Using all the data collected and analyzed during the research, the concept of «TO BE» model of «METALL» Metrics System was built (Figure 1).

The problem detected while exploring these two business-flows is that information flows between Competence Centers and project teams are not clarified, specified and synchronized. The creation of a special Database (which is going to be used via «METALL» Metrics System) would be the solution (Figures 2, 3).

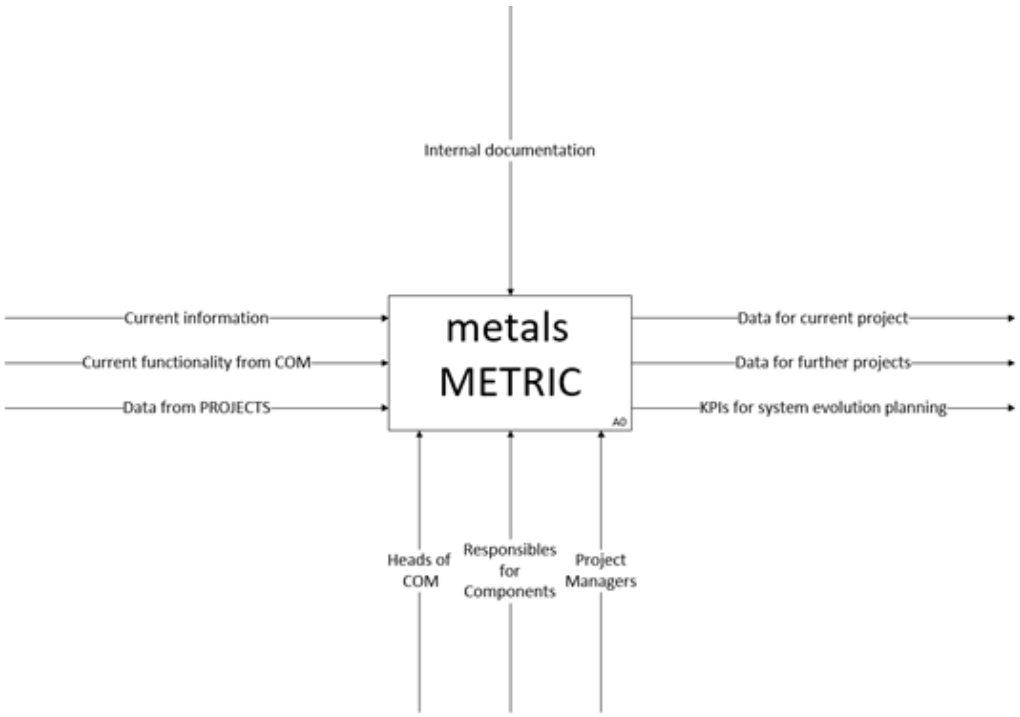

Figure 1 - «TO BE» model of «METALL» Metrics System

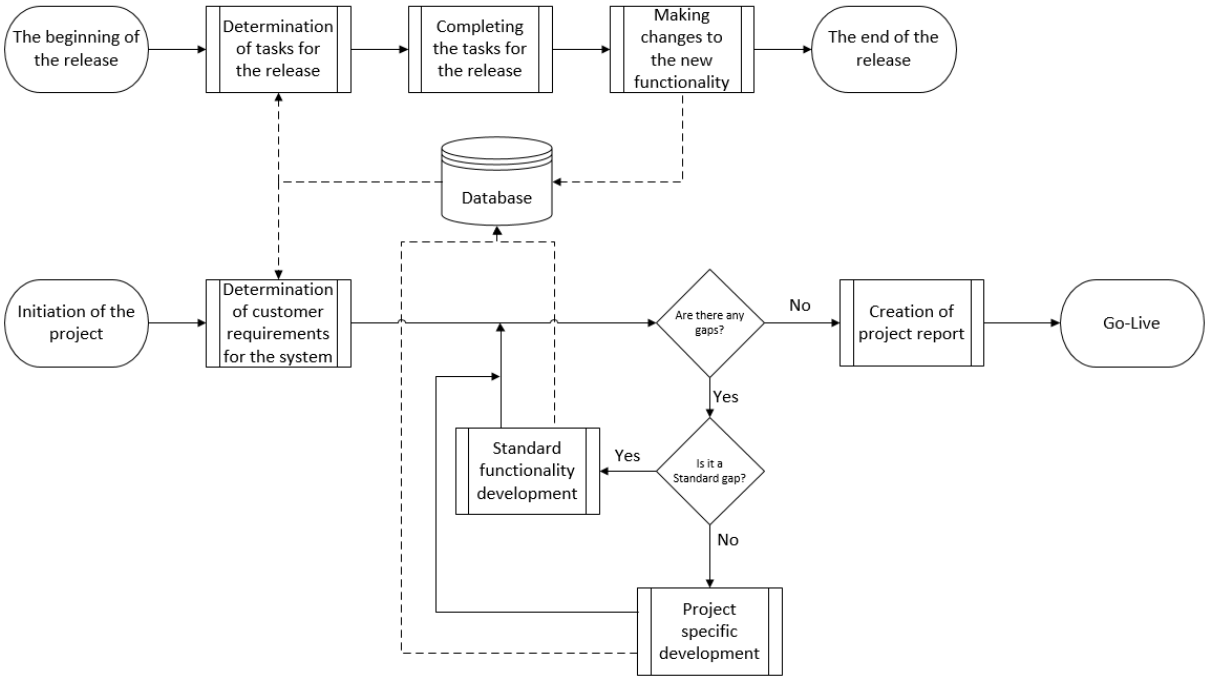

Figure 2 - «TO BE» model of internal workflow

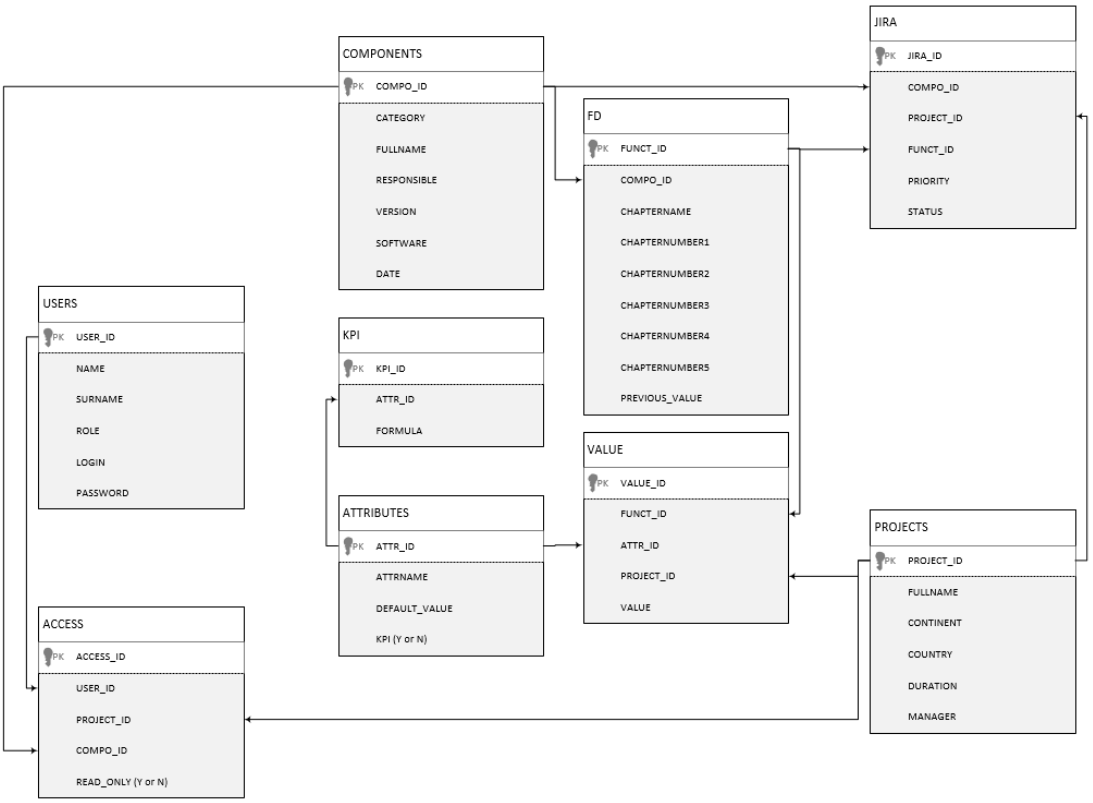

Figure 3 - Database structure of «METALL» Metrics System

In the previous picture the database tables are presented. The main structural unit is Project. Projects could be internal (Standard) and external (customer projects). Standard Projects are created after each release of «METALL» system and used as a standard template for external Projects, which do not have this restriction. Each Project consists of Components, each Component has many Functionalities.

Functionalities are imported from «METALL» Functional Descriptions with chapter numbers to table FUNCTIONALITIES. Each entry in this table is related to table COMPONENTS via table CROSSFUNCTIONALITIES (to enable creating many-to-many relations between Functionalities and Components). Table FUNCTIONALITIES contains names of rows for each entry, table ATTRIBUTES contains names of columns. ATTRIBUTES are described with two main parameters: DEFAULT_VALUE (if exists) and ATTRTYPE (values N for numeric, T for text or B for boolean).

The entry in table FUNCT_VALUES is a cross of Functionality and Attribute: it contains the Value (TVALUE, NVALUE or BVALUE according to ATTRIBUTES.ATTRTYPE) for chosen Functionality of chosen Attribute. As there is a relation between Value and Component via Functionality, then Value should relate to Project (PROJECT_ID).

The last table is JIRA which stores data about Jira issues and sorts it by Projects and Components. This tool would be useful for Standard «METALL» development decision makers.

This concept of workflow and business data organization would give «METALL» company a chance to provide interaction between its different divisions. It would make the process of getting knowledge and experience more effective and sharable, and all these changes would have a positive effect on the time, cost and quality of «METALL» system implementation or customization.

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ОЦЕНКА ФУНКЦИОНАЛЬНОСТЕЙ КОМПОНЕНТОВ КРУПНЫХ ИНФОРМАЦИОННЫХ СИСТЕМ

Аннотация: информатизация всех основных бизнес-процессов стала уже практически нормой грамотного ведения бизнеса во всем мире, информационные системы этапа текущего планирования представлены во всем многообразии выбора для многих отраслей хозяйства. Для крупных компаний основной интерес заключается во внедрении высокоинтеллектуальных систем, которые позволили бы охватить перспективное планирование деятельности и развития организации.

В данной работе на примере выбранного объекта исследования – компании «METALL» – рассматривается создание модели информационной системы, которая позволила бы на основе эконометрического анализа показателей практического использования функциональности отдельных компонентов системы «METALL» получать количественные характеристики каждого проекта, что позволило бы существенно снизить издержки на создание и усовершенствование компонентов системы «METALL»; получить количественные характеристики перспективности развития

и/или внедрения компонента, а также определить наиболее перспективные направления деятельности компании на международном рынке в целом.

Ключевые слова: ИТ, информационная система, модель информационной системы, бизнес-процесс, эконометрический анализ, KPI, оптимизация.

СПИСОК ЛИТЕРАТУРЫ:

1. Андерсен Б. Бизнес-процессы. Инструменты совершенствования / Б. Андерсен; Пер. с англ. С.В. Ариничева; Науч. ред. Ю. П. Адлер. – М.: Стандарты и качество, 2003.
2. Архипенков С.Я. Лекции по управлению программными проектами. М: Москва, 2009.
3. Вольфсон М.Б., Сотников А.Д. Модели и архитектуры электронного предприятия. – Деан, 2009.
4. Щенников С.Ю. Реинжиниринг бизнес-процессов. Экспертное моделирование, управление, планирование и оценка / С. Ю. Щенников. - М.: Ось-89, 2004.
5. Р 50.1.028-2001. Методология функционального моделирования. URL: http://nts.cdep.ru/docs/library/r_50_1_028-2001.pdf (дата обращения: 28.10.2017).
6. ГОСТ 28806-90: Качество программных средств. Термины и определения. URL: http://gostrf.com/normadata/1/4294825/4294825913.pdf (дата обращения: 22.10.2017).
7. ISO 9000:2015. URL: http://www.pqm-online.com/assets/files/pubs/ translations/std/iso-9000-2015-%28rus%29.pdf (дата обращения: 21.10.2017).